Treatment of Iris Melanoma by Photocoagulation: A Case Report

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ABSTRACT
A 13-year-old white male was found to have a melanoma of the iris. Three treatments with xenon arc photocooagulation resulted in regression of the lesion with development of an iris coloboma. There were no complications, and corrected visual acuity has remained at 20/15 after a 19-year follow-up.

Sector iridectomy through a large limbal incision has been the treatment traditionally advocated for suspected iris melanomas of a localized nature not involving the angle or ciliary body and showing growth or evidence of neoplastic behavior. This procedure involves the risks associated with invasive procedures of the eye, including hemorrhage, inflammation, infection, glaucoma, cataract, corneal damage, induced astigmatism, and healing problems. A non-invasive alternative for the treatment of localized iris tumors would appear to offer significant advantages.

CASE REPORT
The patient is a white male first seen July 18, 1966, at the age of 13 years. He had recently been found to have a mass of the left iris. School photographs verified that it had been present, but smaller, at the age of 11 years. Examination showed all findings to be within normal limits except for a solid, elevated pink mass involving the inferior nasal iris and measuring 3.0 by 2.5 mm (Figure 1). The surface was corrugated and showed many abnormal intrinsic vascular channels. Gonioscopy showed large, tortuous vessels coursing to the tumor but no angle invasion. There was no evidence of tumor extension or origin posteriorly.

Five months later the tumor had enlarged further, and the family was quite concerned. The possible treatment options, as well as continued observation, were discussed, and a decision for photocooagulation was made. On November 22, 1966, xenon arc photocooagulation was performed with the anterior segment attachment on the Zeiss instrument. The tumor was covered and surrounded by minimal intensity (basic intensity I; 3° diaphragm) applications (Figure 2). The number was not recorded. There were no complications and only minimal inflammatory reaction. A definite shrinkage of the tumor and surrounding tissue developed. A second treatment was given January 24, 1967. On August 6, 1968, there was only a small tumor remnant (Figure 3). A third and final treatment was delivered on that date.

Sixteen years postoperatively a large coloboma was present with no evidence of late sequelae (Figure 4). Vision was 20/15 with a slight myopic correction. A subsequent observation 18 years postoperatively (November 27, 1985) showed no change.

DISCUSSION
A recent review paper by Kersten, Tse, and Anderson on iris melanoma supported the view that these tumors should continue to be respected as having malignant potential. It was suggested that iris melanomas are not by nature more benign than other uveal melanomas, and that the better prognosis might well be due to earlier detection as a result of their location.

The recommended treatment for iris melanomas not involving the angle or ciliary body is excisional iridectomy. We believe that photocooagulation offers an alternative for treatment of such lesions. Complications associated with excisional iridectomy are not uncom-

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mon. In one series of 26 cases, significant complications were noted in seven cases: total hyphema (2), wound dehiscence (1), rapid development of cataract (3), and apparent angle seeding due to surgery (1).

In 1960, Meyer-Schwickerath mentioned successful treatment of two iris melanomas by xenon arc photocoagulation. We subsequently found xenon arc photocoagulation to be effective in treating a variety of iris conditions, including inadequate pupils and iris-ciliary body cysts. The only complication resulting from such treatment was mild iritis. Complications with photocoagulation of the anterior segment have been reported, including corneal burns, iris hemorrhage, cataract, pigment dispersion, retinal burns, and glaucoma.

We did not experience any of these problems, but they are possibilities in any surgery of this type.

Photocoagulation treatment of iris tumors does not provide tissue for histopathologic study, similar to most non-invasive therapy for other intraocular tumors, including retinoblastoma and various tumors of the choroid. It may be that in cases in which the clinical diagnosis is secure, this does not result in a significant disadvantage to the surgeon or patient for the following reasons:

1. Iris tumors amenable to therapy by photocoagulation are small and isolated so that the question of whether or not to enucleate is not an issue. If the lesion is believed to be a melanoma with proved or potential growth or activity, a sector iridectomy would usually be done. If photocoagulation has been performed, the patient will have been saved from the risks involved in an invasive procedure.

2. Detailed history and examination should lead to a high degree of confidence in the diagnosis. Ferry, Shields, Sanborn, and Amsbury and Roy provide an extensive differential diagnosis. Although the diagnosis is usually quite clear, there

**FIGURE 1:** (Cleasby and Van Westenbrugge). Inferior nasal mass of the left iris.

**FIGURE 2:** (Cleasby and Van Westenbrugge). Appearance immediately following photocoagulation of the mass.

**FIGURE 3:** (Cleasby and Van Westenbrugge). Small residual tumor remnant nine months after initial treatment.

**FIGURE 4:** (Cleasby and Van Westenbrugge). Appearance of the left eye 16 years after initial treatment.
will be instances when the preferred approach for a particularly unusual or baffling lesion will be excisional biopsy for diagnostic purposes. (3) There are instances in which the tumor may extend beyond the margins seen clinically. Although photocoagulation does not provide histologic confirmation of this, the question arises whether or not such information would alter subsequent management. Even in cases where excision is believed to be incomplete on the basis of histopathologic study, further surgery is not necessarily advisable. Makley\textsuperscript{11} described two cases in which tumor was present on histopathologic study at the peripheral margin of an excised lesion, resulting in enucleation. Subsequent histopathologic study showed no sign of residual tumor. Ashton\textsuperscript{12} described eight cases in which excisional biopsy showed incomplete removal. Enucleation was not performed and there was no subsequent clinical evidence of recurrence.

We believe that whether or not apparent complete removal has been accomplished, careful follow-up observation is indicated in all cases for clinical evidence of residual or recurrent tumor. In the absence of such clinical evidence, further intervention is probably unjustified, although recurrent or residual disease, following either excision or photocoagulation might well be amenable to photocoagulation.\textsuperscript{4,13}

REFERENCES